

**Abstract**

An interferometer (1) includes a beam displacing assembly (5, 9). The beam displacing assembly is arranged to split an input beam (4) into first and second basis beams (6, 8), that have orthogonal polarisations being respective horizontal and vertical polarizations, and to combine said basis beams to produce an output beam (12). A polarimetric phase retrieval assembly (11) is responsive to the output beam and is arranged to determine a difference in phase shift imparted to one of the basis beams (6, 7) relative to the other by a test piece (7). Other embodiments of the invention are arranged to produce basis beams that have respectively orthogonal spatial modes.